

In the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1 1. (Original) An elongated sleeve structure for the insertion and protection of
2 elongated items within an outer duct, said sleeve structure comprising a
3 flexible sleeve comprised of a pair of opposed layers of woven resilient
4 filaments comprised of warp yarns and a fill yarn common to both layers,
5 said layers having a common seamless edge and a second edge, the
6 layers being joined along the second edge by a knit stitch formed by
7 interlooping of successive traverses of said fill yarn, said layers being of
8 equal width and being resiliently separable from a first position in which
9 they are in a closely spaced relationship to a spaced apart relationship in
10 which a plurality of said elongated items may be accommodated, said
11 layers being resiliently biased to return to said first position in the
12 absence of any said elongated items.
- 1 2. (Original) An elongated sleeve structure according to claim 1, wherein
2 said warp and fill yarns consist essentially of polyester.
- 1 3. (Original) An elongated sleeve structure according to claim 2, wherein
2 said warp yarns comprise monofilaments having a diameter of about 0.25
3 mm.
- 1 4. (Original) An elongated sleeve structure according to claim 3, wherein
2 said fill yarns comprise monofilaments having a diameter of about 0.20
3 mm.
- 1 5. (Original) An elongated sleeve structure according to claim 4, wherein
2 said sleeve has a weave density of 20 to 35 dents per inch by 20 to 35
3 picks per inch.

- 1 6. (Original) An elongated sleeve structure according to claim 2, wherein
2 said warp and fill yarns are woven in a pattern selected from the group
3 consisting of satin, sateen and twill weaves.
- 1 7. (Original) An elongated sleeve structure according to claim 1, wherein
2 one of said warp and said fill yarns comprise polyester.
- 1 8. (Original) An elongated sleeve structure according to claim 7, wherein
2 one of said warp and said fill yarns further comprise nylon.
- 1 9. (Original) An elongated sleeve structure according to claim 7, wherein
2 one of said warp and said fill yarns further comprise polypropylene.
- 1 10. (Original) An elongated sleeve structure according to claim 1, wherein
2 said warp and fill yarns comprise aramid filaments selected from the
3 group consisting of nylon, polyphenylene sulfide, polyvinylidene fluoride,
4 and copolymers of ethylene and chlorotrifluoroethylene.
- 1 11. (Original) An elongated sleeve structure according to claim 1, wherein
2 said warp and fill yarns have substantially the same color as one another,
3 an additional filamentary member being interwoven with said warp yarns
4 substantially lengthwise along said sleeve and having a color contrasting
5 with said warp and fill yarns.
- 1 12. (Original) An elongated sleeve structure according to claim 1, further
2 comprising an electrically conducting layer substantially coextensive with
3 said sleeve.
- 1 13. (Original) An elongated sleeve structure according to claim 12, wherein
2 said electrically conducting layer comprises aluminum foil.

- 1 14. (Original) An elongated sleeve structure according to claim 12, wherein
2 said electrically conducting layer comprises a plurality of interlaced
3 conductors.
- 1 15. (Original) An elongated sleeve structure according to claim 12, wherein
2 said electrically conducting layer is positioned between said pair of
3 opposed layers.
- 1 16. (Original) An elongated sleeve structure according to claim 12, wherein
2 said electrically conducting layer comprises electrically conducting
3 filaments interwoven with said warp and said fill yarns.
- 1 17. (Original) An elongated sleeve structure according to claim 1, further
2 comprising a pull tape positioned between said opposed layers and
3 extending substantially along the length of said sleeve.
- 1 18. (Original) An elongated sleeve structure according to claim 17, wherein
2 said pull tape has a substantially flat cross-sectional shape.
- 1 19. (Original) An elongated sleeve structure according to claim 17, wherein
2 said pull tape is formed of interlaced filamentary members.
- 1 20. (Original) An elongated sleeve structure according to claim 19, wherein
2 said interlaced filamentary members comprise aramid fibers.
- 1 21. (Original) An elongated sleeve structure according to claim 1, further
2 comprising a flexible polymer coating positioned on said sleeve, said
3 coating providing a substantially fluid-tight seal enabling inflation of said
4 sleeve.
- 1 22. (Original) An elongated sleeve structure according to claim 1, further
2 comprising a binder yarn extending lengthwise along said second edge,

3 said binder yarn having a plurality of loops surrounding said successive
4 traverses of said fill yarns to facilitate closure of said second edge.

1 23. (Original) An elongated sleeve structure according to claim 1, further
2 comprising an attachment piece engaging said sleeve near an end
3 thereof, said attachment piece being adapted to receive a line for drawing
4 said sleeve through said outer duct.

1 24. (Original) An elongated sleeve structure according to claim 23, wherein
2 said attachment piece is adapted to attach said sleeve to a plurality of
3 other said sleeves when said sleeves are arranged in overlying relation
4 with one another.

1 25. (Original) An elongated sleeve structure according to claim 23, wherein
2 said attachment piece comprises a grommet, said grommet comprising: a
3 tube extending through said sleeve; a flange attached to one end of said
4 tube, said flange being positioned in engagement with one of said
5 opposed layers; and a ring positioned in engagement with another of said
6 opposed layers, said ring being in overlying relation with said flange, said
7 tube having a lip engaging and attaching said ring in said overlying
8 relation with said flange.

1 26. (Original) An elongated sleeve structure according to claim 25, wherein
2 said lip is formed by cold-working said tube and forming an outward
3 reverse fold therein.

1 27. (Original) An elongated sleeve structure according to claim 25, further
2 comprising a plurality of said sleeves positioned in overlying relation with
3 one another in a stack, said tube extending through said plurality of
4 sleeves and attaching said sleeves to one another, said flange engaging
5 one of said sleeves uppermost in said stack, said ring engaging another
6 of said sleeves positioned lowermost in said stack.

- 1 28. (Original) An elongated sleeve according to claim 24, wherein said
2 attachment piece comprises a suture extending through said opposed
3 layers into engagement with at least another set of opposed layers of
4 another of said sleeves thereby attaching said sleeves to one another.
- 1 29. (Original) An elongated sleeve structure according to claim 24, wherein
2 said attachment piece comprises a post extending through said opposed
3 layers of said sleeve and through other opposed layers of another of said
4 sleeves, a pair of cross pieces being attached at opposite ends of said
5 post, said cross pieces engaging said opposed layers and retaining said
6 sleeves to one another.
- 1 30. (Original) An elongated sleeve structure according to claim 29, further
2 comprising a plurality of said posts and said cross pieces positioned in
3 spaced relation lengthwise along said plurality of sleeves and joining said
4 sleeves to one another, one of said posts and said cross pieces in each
5 of said attachment pieces being frangible upon the application of a force
6 separating said sleeves one from another.
- 1 31. (Original) An elongated sleeve structure according to claim 2, wherein
2 said filaments are woven in a pattern wherein said fill yarns float above
3 two or more of said warp yarns.
- 1 32. (Original) An elongated sleeve for receiving elongated items, said sleeve
2 comprising a flexible sidewall surrounding and defining a central space,
3 said sidewall comprising polyester warp yarns interwoven with polyester
4 fill yarns in a weave pattern selected from the group consisting of twill,
5 satin and sateen weaves, opposing portions of said sidewall being in
6 facing relation with one another to assume a substantially flat
7 configuration, said opposing sidewall portions being separable into

8 spaced apart relation to receive said elongated items within said central
9 space.

1 33. (Original) A sleeve according to claim 32, wherein said opposing sidewall
2 portions are resiliently expandable into said spaced apart relation.

1 34. (Original) A sleeve according to claim 32, wherein said warp yarns
2 comprise monofilaments having a diameter of about 0.25 mm.

1 35. (Original) A sleeve according to claim 34, wherein said fill yarns comprise
2 monofilaments having a diameter of about 0.20 mm.

1 36. (Original) A sleeve according to claim 35, wherein said sidewall has a
2 weave density of about 20 to 35 dents inch by about 20 to 35 picks per
3 inch.

1 37. (Original) A sleeve according to claim 32, further comprising an
2 electrically conducting layer positioned on said sidewall and surrounding
3 said central space.

1 38. (Original) A sleeve according to claim 37, wherein said electrically
2 conducting layer comprises aluminum foil.

1 39. (Original) A sleeve according to claim 37, wherein said electrically
2 conducting layer comprises a plurality of interlaced metal wires.

1 40. (Original) A sleeve according to claim 37, wherein said electrically
2 conducting layer is positioned between said central space and said
3 sidewall.

- 1 41. (Original) A sleeve according to claim 32, further including an electrically
2 conducting wire interlaced with said filamentary members lengthwise
3 along said sidewall.
- 1 42. (Original) A sleeve according to claim 32, further comprising a seam
2 extending lengthwise along said sidewall, said seam being closed by
3 interknitted loops of said fill elements comprising said opposing sidewall
4 portions with one another.
- 1 43. (Original) A sleeve according to claim 42, further comprising a reverse
2 fold positioned in said sidewall opposite to said seam.
- 1 44. (Original) A sleeve according to claim 32, further comprising a pull tape
2 positioned within said central space and extending substantially along the
3 length of said sidewall.
- 1 45. (Original) A sleeve according to claim 44, wherein said pull tape has a
2 substantially flat cross-sectional shape.
- 1 46. (Original) A sleeve according to claim 44, wherein said pull tape is formed
2 of interlaced filamentary members.
- 1 47. (Original) A sleeve according to claim 46, wherein said interlaced
2 filamentary members comprise aramid fibers.
- 1 48. (Original) A sleeve according to claim 32, further comprising an
2 attachment piece engaging said sidewall, said attachment piece being
3 adapted to attach said sleeve to a plurality of other said sleeves when
4 said sleeves are arranged in overlying relation with one another, said
5 attachment piece engaging sidewalls of said plurality of other sleeves.

1 49. (Original) A sleeve according to claim 48, wherein said attachment piece
2 comprises: a first surface positioned in engagement with a sidewall of a
3 first one of said sleeves; a second surface positioned in engagement with
4 a sidewall of a second one of one of said sleeves; and a linking element
5 extending through said sidewalls of said first and second sleeves and
6 said sleeves positioned between said first and second sleeves, said
7 linking element being attached to said first and second surfaces, said first
8 and second surfaces being in substantially overlying relation with one
9 another, said sidewalls being captured between said first and second
10 surfaces.

1 50. (Original) A sleeve according to claim 49, wherein said attachment piece
2 comprises a grommet, said grommet comprising: a tube extending
3 through said sidewalls, said tube comprising said linking element; a
4 flange attached to one end of said tube, said flange being positioned in
5 engagement with said one sidewall and comprising said first surface; and
6 a ring positioned in engagement with said other sidewall, said ring being
7 in overlying relation with said flange and comprising said second surface,
8 said tube having a lip engaging and attaching said ring in said overlying
9 relation with said flange.

1 51. (Original) A sleeve according to claim 50, wherein said lip is formed by
2 cold-working said tube and forming an outward reverse fold therein.

1 52. (Original) A sleeve according to claim 48, wherein said attachment piece
2 comprises a suture positioned within said sidewall and extending
3 therethrough into engagement with at least another sidewall of another of
4 said sleeves thereby attaching said sleeves to one another.

1 53. (Original) A sleeve according to claim 48, wherein said attachment piece
2 comprises a post extending through said sidewall and through another
3 sidewall of another of said sleeves, a pair of cross pieces being attached

4 at opposite ends of said post, said cross pieces engaging said sidewalls
5 and retaining them to one another.

1 54. (Original) A sleeve according to claim 53, further comprising a plurality of
2 said posts and said cross pieces positioned in spaced relation lengthwise
3 along said sidewalls of said plurality of sleeves and joining said sidewalls
4 to one another, one of said posts and said cross pieces in each of said
5 attachment pieces being frangible upon the application of a force
6 separating said sleeves one from another.

1 55. (Original) An assembly for receiving elongated items, said assembly
2 comprising: a plurality of flexible sleeves, each said sleeve having a
3 sidewall surrounding and defining a central space, opposing portions of
4 said sidewall of each said sleeve being resiliently biased into facing
5 relation with one another to assume a substantially flat configuration, said
6 opposing sidewall portions being separable into spaced relation to
7 receive said elongated items within said central space; and an
8 attachment piece extending through each of said sidewalls and attaching
9 said sleeves to one another in overlying relation.

1 56. (Original) An assembly according to claim 55, wherein said attachment
2 piece comprises: a first surface positioned in engagement with a sidewall
3 of a first one of said sleeves; a second surface positioned in engagement
4 with a sidewall of a second one of one of said sleeves; and a linking
5 element extending through said sidewalls of said first and second sleeves
6 and said sleeves positioned between said first and second sleeves, said
7 linking element being attached to said first and second surfaces, said first
8 and second surfaces being in substantially overlying relation with one
9 another, said sidewalls being captured between said first and second
10 surfaces.

- 1 57. (Original) An assembly according to claim 56, wherein said attachment
2 piece comprises a grommet, said grommet comprising: a tube extending
3 through said sidewalls, said tube comprising said linking element; a
4 flange attached to one end of said tube, said flange being positioned in
5 engagement with said one sidewall and comprising said first surface; and
6 a ring positioned in engagement with said other sidewall, said ring being
7 in overlying relation with said flange and comprising said second surface,
8 said tube having a lip engaging and attaching said ring in said overlying
9 relation with said flange.
- 1 58. (Original) An assembly according to claim 55, wherein said attachment
2 piece comprises a suture extending through said sidewalls of said
3 sleeves and thereby sewing said sleeves to one another.
- 1 59. (Original) An assembly according to claim 55, wherein said attachment
2 piece comprises: a post extending through said sidewalls of said sleeves;
3 a pair of cross pieces attached at opposite ends of said post; one of said
4 cross pieces engaging a sidewall of a first one of said sleeves; and
5 another of said cross pieces engaging a sidewall of a second one of one
6 of said sleeves, said post and said cross pieces holding said sleeves in
7 said overlying relation.
- 1 60. (Original) An assembly according to claim 59, further comprising a
2 plurality of said posts and said cross pieces positioned in spaced relation
3 lengthwise along said sidewalls of said plurality of sleeves and joining
4 said sidewalls to one another, one of said posts and said cross pieces in
5 each of said attachment pieces being frangible upon the application of a
6 force separating said sleeves one from another.
- 1 61. (Original) An assembly according to claim 55, wherein said sidewall of at
2 least one of said sleeves comprises a plurality of interlaced filamentary
3 members.

- 1 62. (Original) An assembly according to claim 61, wherein said filamentary
2 members comprise warp and fill yarns interlaced by weaving.
- 1 63. (Original) An assembly according to claim 62, wherein said warp
2 filaments are oriented lengthwise along said sidewall.
- 1 64. (Original) An assembly according to claim 62, wherein said filamentary
2 members are woven in a pattern selected from the group consisting of
3 satin, sateen and twill weaves.
- 1 65. (Original) An assembly according to claim 62, wherein said warp and fill
2 yarns comprise polyester.
- 1 66. (Original) An assembly according to claim 62, wherein said filamentary
2 members comprise aramid filaments selected from the group consisting
3 of nylon, polyphenylene sulfide, polyvinylidene fluoride, and copolymers
4 of ethylene and chlorotrifluoroethylene.
- 1 67. (Original) An assembly according to claim 55, further comprising a
2 plurality of pull tapes, each one of said pull tapes being positioned within
3 said central space of one of said sleeves, respectively, and extending
4 substantially along the length thereof.
- 1 68. (Original) An assembly according to claim 67, wherein each of said pull
2 tapes has a substantially flat cross-sectional shape.
- 1 69. (Original) A sleeve according to claim 67, wherein each of said pull tapes
2 is formed of interlaced filamentary members.
- 1 70. (Original) A method of positioning and protecting elongated items within a
2 duct, said method comprising the steps of: providing a flexible sleeve

- 3 comprised of a pair of opposed layers of woven resilient filaments
4 comprised of warp yarns and a fill yarn common to both layers, said
5 layers having a common seamless edge and a second edge, the layers
6 being joined along the second edge by a knit stitch formed by interlooping
7 of successive traverses of said fill yarn, said layers being of equal width
8 and being resiliently separable from a first position in which they are in a
9 closely spaced relationship to a spaced apart relationship in which a
10 plurality of said elongated items may be accommodated, said layers
11 being biased to return to said first position in the absence of any said
12 elongated items, a pull tape being positioned between said layers and
13 extending lengthwise along said sleeve; fixing an attachment device on
14 an end of said sleeve; drawing a line through said duct; attaching one end
15 of said line to said attachment device; drawing said sleeve through said
16 duct using said line; severing said sleeve to remove said attachment
17 device; attaching said elongated item to one end of said pull tape; and
18 drawing said elongated item through said sleeve using said pull tape.
- 1 71. (New) An assembly according to claim 55, wherein said attachment piece
2 extends through said sidewalls along at least one edge of said sleeves
3 thereby attaching said sleeves to one another.